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Two new species of *Lasionectria* (*Bionectriaceae, Hypocreales*) from Guadeloupe and Martinique (French West Indies)

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Abstract —*Lasionectria marigotensis* sp. nov. on decaying leaves of *Cocos nucifera* (*Arecaceae*) in Guadeloupe and *L. martinicensis* sp. nov. on dead stems of *Passiflora* sp. (*Passifloraceae*) in Martinique are described and illustrated. The acremonium-like asexual state was obtained in culture for both species. An updated key to the species of *Lasionectria* is provided.

Key words —*Ascomycota*, neotropics, palm fungi, taxonomy

Introduction

The genus *Lasionectria* (Sacc.) Cooke is based on the lectotype *L. mantuana* (Sacc.) Cooke, designated by Clements & Shear (1931). The ascomata of *Lasionectria* are yellow, pale orange, red-orange or dark brown, and do not obviously change colour in 3% KOH or lactic acid; thus *Lasionectria* belongs to the *Bionectriaceae* Samuels & Rossman as defined by Rossman et al. (1999). The genus is distinguished from other genera in the *Bionectriaceae* by the ascomatal wall over 20 µm thick and composed of thick-walled cells with a small lumen and hairs scattered over the ascomatal surface. Hairs may be stiff or flexuous, solitary or fasciculate but do not form a distinct apical crown. The most similar genus is *Ijuhya* Starbäck, which differs mainly in having ascomata with a wall less than 20 µm thick and typically with a discoid flattened apex fringed by triangular fascicles of hairs, or rarely without hairs (Rossman et al. 1999). Both genera have acremonium-like anamorphs in culture and occur on various woody or herbaceous substrates.

In the course of an ongoing research program on the fungal diversity of Lesser Antilles, «Les champignons des Petites Antilles; diversité, écologie, protection», conducted by Prof. R. Courtecuisse (Courtecuisse 2006), two bionectriaceous ascomycetes were collected that permitted a detailed

morphological characterization and successful single ascospore isolations. Based on perithecia not changing color in 3% KOH or lactic acid, ascomatal wall composed of two regions with the outer region composed of thick-walled cells with a small lumen, presence of hairs on the surface and comparison with known species in the genus, these specimens were determined to represent previously undescribed species of *Lasionectria*. Both specimens were cultured from single ascospores and produced acremonium-like asexual state.

Materials & methods

Specimens were examined using the methods described by Rossman et al. (1999). Microscopic observations and measurements were made in water and the ascospore ornamentation was observed in cotton blue in lactic acid. Cultures were made from single ascospores that were isolated on PDA (Difco™ Potato Dextrose Agar). The holotype specimens are deposited in LIP herbarium (Lille) and cultures at CBS.

Taxonomy

Lasionectria marigotensis Lechat & J. Fourn., **sp. nov.** Plate 1a–f

Mycobank MB 564150

Differs from known *Lasionectria* species in white to pale orange ascomata with erect non-fasciculate hairs evenly scattered on surface and relatively small, smooth-walled ascospores.

Type: French West Indies, Guadeloupe, Vieux Habitants, Marigot, l'Anse à la barque, on decaying leaf of *Cocos nucifera* L. (*Arecaceae*), 3 Aug. 2011, leg. Christian Lechat CLLGUAD11002 (**Holotype**, LIP; ex-type culture CBS131606).

Etymology: The epithet is derived from Marigot, the locality where this species was collected.

Perithecia gregarious, superficial, subglobose, (130–)160–180(–200) µm high × (120–)130–150(–180) µm diam. (^{m} = 170 × 145 µm, n = 10), white to pale orange, collapsing cupulate, shining when dry, not changing color in 3% KOH or lactic acid, hairs erect to flexuous covering perithecial surface. Perithecial apex conical, composed of a palisade of cylindrical cells rounded at tip. Hairs 14–47 µm long, 3–3.5(–4) µm wide, hyaline, cylindrical, thick-walled (1 µm), rounded at tip, aseptate. Perithecial wall 20–25(–30) µm thick, composed of two regions: outer region 15–20 µm wide, of globose to ellipsoidal 2.5–7 × 2–4.5 µm cells, with pale yellow walls 1–1.5 µm thick, each with a small lumen; inner region 5–10 µm wide, of elongate, flattened cells 4–11 × 1.5–2.5 µm, with hyaline walls 0.5–0.8 µm thick. Asci evanescent (30–)40–48(–53) × (7–)8–9(–10) µm (^{m} = 44.5 × 8.7 µm, n=20), clavate, apices flattened, without ring, with eight biseriate ascospores completely filling each ascus. Ascospores (9–)10–12.5(–13.5) × 3–3.5µm (^{m} = 11.6 × 3.2 µm, n=30), fusiform, slightly curved, 1-septate, hyaline, smooth.

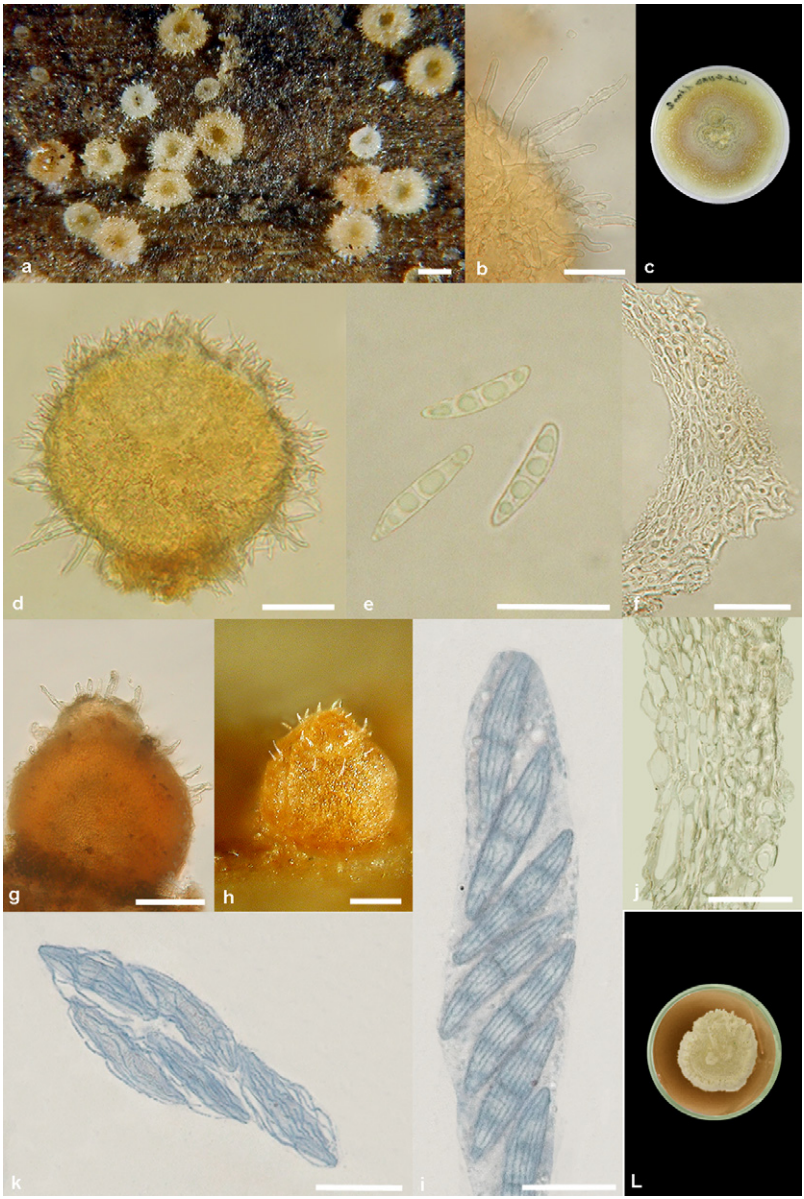

Plate 1. ***Lasionectria marigotensis*** (holotype). **a.** Perithecia. **b.** Hairs. **c.** Culture. **d.** Perithecium in water. **e.** Ascospores. **f.** Median section of perithecial wall. ***Lasionectria martinicensis*** (holotype). **g–h.** Perithecium. **i.** Ascus and ascospores. **j.** Median section of perithecial wall. **k.** Striations dehiscing from the ascospores. **l.** Culture. Scale bars: a, g, h = 100 µm; b = 30 µm; d = 50 µm; e, i, k = 10 µm; f, j = 20 µm.

In Culture: After three weeks at 25°C on Difco PDA containing 5 mg/L streptomycin, colony 5–7.5 cm diam, without coloration of the medium, mycelium white to greyish, producing an *Acremonium*-like anamorph at white margin of colony, conidiophores monophialidic, 18–34 µm long, 2–2.5 µm diam with 1-septum at base, finely spinulose, arising from smooth hyphae 2–2.8 µm diam, conidia cylindrical to widely ellipsoidal (3.5–)4–6(–6.5) × 2–2.8 µm (^{m} = 5.4 × 2.5 µm, n = 30), hyaline, smooth, non-septate, with a basal abscission scar.

Lasionectria martinicensis Lechat & J. Fourn., **sp. nov.** Plate 1g–l

MycoBank MB 563442

Differs from known *Lasionectria* species in pale orange ascomata with erect non-fasciculate hairs evenly scattered on upper half and striate ascospores.

Type: French West Indies, Martinique, Schoelcher, Rivière Case Navire, on dead stems of *Passiflora* sp. (*Passifloraceae*), 28 Aug. 2010, leg. Christian Lechat CLLMAR085 (**Holotype**, LIP; ex-type culture CBS129746).

Etymology: The epithet is derived from the name of the island where this species was collected.

Perithecia solitary, superficial, subglobose to obpyriform, (200–)220–270 (–285) µm high × (160–)180–250(–270) µm diam. (^{m} = 250 × 220 µm, n = 10), pale orange to orange, collapsing laterally, not changing color in 3% KOH or lactic acid, hairs erect scattered over the upper half of the perithecium. Perithecial apex conical composed of palisades of cylindrical to narrowly clavate cells. Hairs 40–75 µm long, 6–7 µm wide at base, attenuated at tip, hyaline, cylindrical, thick-walled (1–1.7 µm), rounded or acute at tip, septate. Perithecial wall 25–35 µm thick, composed of two regions: outer region 15–20 µm wide, of globose to ellipsoidal 3.5–7 × 2–6 µm cells, with pale yellow walls 1.2–1.7 µm thick, each with a small lumen; inner region 8–15 µm wide, of elongate, flattened cells 8–19 × 2.5–3.5 µm, with hyaline walls 0.5–1 µm thick. Asci (65–)70–75(–80) × (8–)9–11(–12) µm (^{m} = 72.5 × 10.5 µm, n = 20), clavate, apices rounded, without ring, with eight biseriate ascospores. Ascospores (14–)16–20(–22) × 3–3.7µm (^{m} = 18.9 × 3.4 µm, n = 30), fusiform, 1-septate, hyaline, striate with striations finely verrucose and dehiscing from ascospore when slightly crushed under the cover slip.

In Culture: After two weeks at 25°C on Difco PDA containing 5mg/L streptomycin, colony 3–3.5 cm diam, spreading a reddish brown coloration in medium, mycelium white to pale yellow, producing an *Acremonium*-like anamorph at margin of colony, conidiophores monophialidic, 42–55 µm long, 3–4 µm diam with 1-septum at base, arising from smooth hyphae 2.5–3.8 µm diam, conidia cylindrical to widely ellipsoidal (3.5–)4–6.5(–7) × 2– 4 µm (^{m} = 6.1 × 3.2 µm, n = 30), hyaline, smooth, non-septate, with a basal abscission scar.

Dichotomous key to species of *Lasionectria*

1. Ascospores striate **2**
1. Ascospores smooth **5**

2. Habitat aquatic; ascomatal wall yellow; ascospores 13–17 × 4.5–6 µm . . . ***L. fournieri***
2. Habitat terrestrial; ascomatal wall pale orange to orange red or orange brown **3**

3. Ascospores 8–11 × 3–4 µm . . . . . ***L. vulpina***
3. Ascospores larger **4**

4. Ascospores two-celled, 16–20 × 3–3.7 µm . . . . . ***L. martinicensis***
4. Ascospores one-celled, 22.8–30 × 7.5–10.5 µm . . . . . ***L. calamicola***

5. Ascomata with scattered hairs 14–47 µm long, evenly distributed, not bound in fascicles; ascospores 10–12.5 × 3–3.5 µm; on palm . . ***L. marigotensis***
5. Ascomata with both scattered and fasciculate hairs; on other plant **6**

6. Ascomata with scattered hairs 12–18 µm long and fasciculate hairs 30–36 µm long around the apex; ascospores 8.5–9.5 × 3–3.5 µm; on wood . . . . . ***L. mantuana***
6. Ascomata with hairs up to 100 µm long; ascospores 11–15 × 3–4 µm; on herbaceous stems. . . . . ***L. sylvana***

Discussion

The two species described herein meet all the key features of *Lasionectria* as defined by Rossman et al. (1999). They differ from the most closely morphologically related genus *Ijuhya* by ascomata lacking a discoid apex and an apical crown of fasciculate hairs and by having an ascomatal wall more than 20 µm thick, composed of globose thick-walled cells in the outer region.

Lasionectria marigotensis can be recognized by the combination of white to pale orange ascomata with scattered erect hairs evenly distributed on the ascomatal surface and the relatively small, smooth-walled ascospores. Its occurrence on palm might be significant if further collections confirm a host preference or specificity. Another *Lasionectria* species reported from palm is *L. calamicola* J. Fröhl. & K.D. Hyde, known from two collections from Australia and Brunei Darussalam (Fröhlich & Hyde 2000). This taxon clearly differs from *L. marigotensis* in having orange brown ascomata bearing hairs arranged in fascicles and one-celled ascospores with striate walls.

Lasionectria martinicensis is unambiguously distinguished from other species based on its large ascospores with a conspicuously striate perispore easily loosening from the epispore. Other species of *Lasionectria* known to have striate ascospores are *L. calamicola*, *L. fournieri* Lechat, and *L. vulpina* (Cooke) Rossman & Samuels. The former differs in having one-celled ascospores 22.8–30 × 7.5–10.5 µm and in occurring on palm. *Lasionectria fournieri* occurs exclusively on submerged wood and its ascospores are markedly wider than those of *L. martinicensis*, while *L. vulpina* differs in having smaller ascospores 8–11 × 3–4 µm.

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